



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

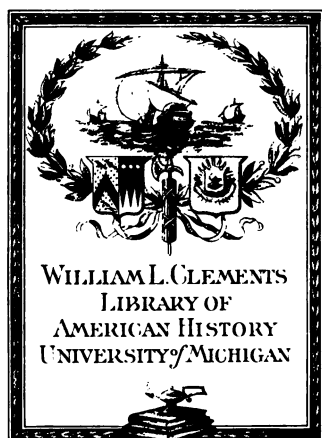
- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

GRAD
VM
140
.R9
B45
1900

B 911,302



Transferred to
General Library

1. *Chamaecyparis* 100

James Rumsey,
THE
Inventor of the Steamboat.

A Paper by
Mr. George M. Beltzhoover, Jr.



Was West Virginia Historical and
Antiquarian Society's
Publication.

1884.



James Rumsey,

THE

Inventor of the Steamboat.

A Paper by
Mr. George M. Beltzhoover, Jr.



The West Virginia Historical and
Antiquarian Society's
Publication.

1900.

VM
140
.R9
B45
1900

PRESS OF BUTLER PRINTING CO.

Gift
Wm CL
3-27-61
a12

JAMES RUMSEY,

THE

INVENTOR OF THE STEAMBOAT.

A PAPER BY MR. GEORGE M. BELTZHOVER.

West Virginia's existence as a separate state—organized June 20th, 1863, just 36 years ago is too brief to have yet much of a history. But it has a heritage from the Mother state, Virginia—the oldest of the thirteen original states—that is rich with historic incidents and achievements, and justly the pride of her sons and their descendants.

The home of James Rumsey, and the birth-place of the steamboat, of which he was the inventor, was at Shepherdstown, in Jefferson County. To understand the character of the man and his work it is well to know something of the surroundings in which he lived, and the circumstances under which he operated.

Jefferson is the extreme eastern county of West Virginia, separated by the Potomac river from Maryland on the north, and adjoining and bounded by Loudoun and Clarke counties, Virginia, on the east and south. Jefferson was originally a part of Spottsylvania county, established in 1721, of which Fredericksburg was the county seat. Later a part of Orange county formed in 1735, then of Frederick county formed 1738. Berkeley county was taken from Frederick in 1772, and Jefferson from Berkeley, by which it is bounded on the west, in 1801. It has an area of 210 square miles, rolling in surface but the land is fertile and productive. It has a population of about 16,000, nearly one-fifth colored.

The county is noted as the place of residence of four Generals of the Revolutionary army,—Darke, Gates, Lee and Stephen, each of whom owned fine estates round which still cluster many interesting reminiscences. Items of natural interest to educators, and "W. V. U." people of today, are the Academy, at Charles Town, founded in 1795, at which three sons of James Madison, while President of the United States, and many others who became eminent in the history of the county, were educated. Jefferson was also the first county in the state to adopt and establish a free-school system.

Sherherdstown, the oldest town in West Virginia, is situated on the right bank of the Potomac, in the northern end of the county of Jefferson. The country in its vicinity was first settled by Germans, about 1730, before George Washington was born. The site of the town was purchased and laid out by Thomas Shepherd, and by act of the General Assembly of Virginia, in November, 1762, established as a town under the name of Mecklenburg, the Preamble reciting that said Shepherd had laid off 50 acres into lots and streets for a town.

It was incorporated by Act of the General Assembly of Virginia, in December, 1793, under the same name—Mecklenburg—and by another Act, passed in 1798, taking in additional territory, the name was changed, in honor of the founder, to "Shepherd's Town."

The early and pre-colonial organization of the town is shown in the names of some of its streets. The main cross-street is named "King"; another west of it, and on which Rumsey lived, is named "Duke", and the one next east, leading down to the river and at the foot of which Rumsey made his memorable steamboat experiments, "Princess" street. While the appearance of age in some respects is still manifest to the observant visitor, in other respects the town has kept pace with the march of progress, and presents some marked contrasts between the close of the 18th and 19th centuries.

In July, 1775, the Shepherdstown Company, one of the earliest organized in the Revolutionary War, started from Morgan's Spring near by, made the whole of its then rapid and "bee line" journey to Boston to join Washing-

ton, on foot. By the construction of the Shenandoah Valley Rail Road, opened in 1880, now the Norfolk and Western, affording a through line between North and South, there has been witnessed passing daily across the main street solid Pullman Palace trains, direct from Boston through to New Orleans without change of cars. In addition it is the centre of a triangle bounded by other railroads, having the trunk line of the Baltimore & Ohio running East and West five miles South, the Washington county branch of the Baltimore & Ohio six miles North, and the Cumberland Valley eight miles West.

Again, in October, 1765, the General Assembly of Virginia granted Thomas Shepherd the right and franchise to establish a ferry across the river—15 to 20 feet deep and over 600 feet wide—connecting the town with Maryland. Today two fine iron bridges, (one wagon, the other railroad) near together, span the river where the ferry once crossed, the railroad bridge nearly 100 feet high, using as its natural abutment the very cliff on which gathered the witnesses of Rumsey's boat trials on the surface of the stream between where the two bridges now stand.

Shepherdstown is 17 miles south of Hagerstown, Maryland, 10 miles east of Martinsburg, and 10 miles northwest of Harper's Ferry. It is surrounded by a well developed and improved agricultural country. The attractive scenery of the winding Potomac has a fine view of the Blue Ridge mountains in the distance.

Though the town is near the river, yet with an elevation of over 100 feet above it and a gradual slope from its main street downward thereto, it is well drained, healthful and a delightfully located place of residence.

It has been richly blessed through its long existence with abundant religious privileges, and a church-going people, evidenced by its now having nine churches, viz: Catholic, Episcopal, Lutheran, two Methodists, (M. E. and M. E. South) Presbyterian and Reformed; also a Baptist and a Methodist church, colored. The foundation of some of these churches dates back to the last century. The Lutheran church building, partly remodelled in 1868, still a substantial brick structure, was built in 1795.

Shepherdstown is equally favored with good educational advantages, having had for several years well organized graded free schools, both white and colored. Shepherd College was opened as a classical school in September, 1872. A branch of the State Normal School was established in connection with it, the following year. This institution in its earlier years had its serious struggle for existence; but by State aid under the more liberal policy of recent years, it is now well equipped and contributes to the general educational work of the Eastern end of the State, and proves a feeder to the University itself.

There are many local historic incidents, partly the outgrowth of the town's relation to the Revolutionary and Civil wars, and also personal reminiscences, which would be interesting to relate, if space allowed; but one of the most cherished and ready to be mentioned with pride by the older citizens of the town, is the story of Rumsey and his Steamboat.

When we consider what a factor the steamboat is in the social and business world of to-day, the question of its origin becomes an interesting one. Who was the inventor of the steamboat, is still a matter of dispute. The aim and purpose of this paper is to present briefly the facts and available evidence showing that "the first *successful* application of steam to the *practical* purpose of navigation" was made by James Rumsey, on the Potomac river, at Shepherdstown, Va., and before the earliest date claimed by Fitch (Rumsey's main rival for precedence) for his invention, and years before Robert Fulton's experiments on the Hudson, to whom the honor of inventor is generally accredited.

In the history of the steamboat, like that of many other useful inventions, prophecy and theory long preceded realization. Friar Bacon is said to have written in the 13th century, that "instruments may be made by which the largest ships, with only one man guiding them, will be carried with greater velocity than if they were full of sailors."

Actual efforts to propel boats by steam may have been made before Rumsey's experiment, but without success or practical results.

Blasco de Garay, a Spaniard, is said to have moved a vessel by steam as early as 1543, in the harbor of Barcelo-

na, and in the presence of the Emperor, Charles V.; but the story is not well authenticated.

The Marquis of Worcester, who is supposed to have been the author of an anonymous pamphlet published at London in 1651, under the title of "Inventions of Engines and Motors recently brought to Perfection," has also been credited with the invention, but this claim too is regarded doubtful.

Next in order is the claim in behalf of Dr. Dennis Papin, a Frenchman, who, in 1690, proposed to use his piston engine "to drive paddle-wheels to propel vessels." In 1707, he applied his pumping engines to a model boat on the Fulda, at Cassel, but it is said the mode of its application prevented its being successful.

In 1737, Jonathan Hulls, of England, published a pamphlet entitled, "Description and draught of a new-invented machine, for carrying vessels out of, or into any harbour, port or river, against wind and tide, or in a calm; for which his majesty George III., has granted letters patent for the sole benefit of the author, for the space of 14 years." "His outfit consisted of a stout boat, a pair of wheels rigged out over each side of the stern, moved by means of ropes passing around their outer rims; and to the axis of these wheels are fixed six paddles to propel the boat; a tow-line passes to the foremast of the two-decker, which the boat thus tows through the water." There is no evidence that he ever put the plan to the test of an experiment, but the tradition is that he tried a model and so failed as to never make further effort.

In 1757, Bernouilli, a Frenchman, and Genevois, a Swiss, made experiments in steam propulsion. The first used a kind of artificial fin, and the latter the "duck's-foot" propeller. The results were not satisfactory and the attempts were abandoned.

In 1763, William Henry, of Chester County, Pennsylvania, is said to have made a model boat to move by steam, but failed.

In 1774, the Comte d'Auxeron, of France, with the aid of his countryman, M. Parier, launched a boat on the Seine, which they tried to propel by steam, but did not suc-

ceed. In the following year, M. Parier tried another boat, but again without success.

In 1778, and again in 1781-82, the French Marquis de Jeouffuroy made some encouraging experiments with the "duck's-foot" propeller; but political disturbances interrupted and ended his efforts.

Following in chronological order, we now come to the consideration of Rumsey's life, efforts and experiments.

James Rumsey was born at "Bohemian Manor", Cecil county, Maryland, 1743. His father, a farmer, with a large family and limited means, was unable to give his children many educational advantages. Rumsey had a strong mind, retentive memory and an indomitable will. He was a "natural mechanic", very studious and industrious. When the Revolutionary war broke out Rumsey promptly volunteered, a fact vouched for by Major Henry Bedinger, a Revolutionary patriot. At the close of the war, in 1783, with Nicholas Orrick as partner, Rumsey went into the mercantile business, at Bath, now known as Berkeley Springs, in Morgan County, West Virginia. In 1784 he was associated with Robert Throgmorton in a boarding house for visitors to the springs, as appears by their advertisement in the year's file of the "Maryland Gazette", published at Annapolis.

It is claimed that he had begun experiments with steam as early as 1774, but there is no existing evidence of it. However it does appear in a Petition by him, to the Maryland Legislature in Nov., 1783, now on file at Annapolis, that he had been for several years prior thereto "employed with unremitting attention" in perfecting and bringing to perfection, among other things, an engine for "propelling boats on the water by power of steam." The number and variety of "machines and engines" mentioned by him in said petition (one of them was a "Pipe Boiler") show the scope and range of his early mechanical conceptions.

Rumsey, up to this time, had perhaps never seen a steam-engine. The information on the subject in this country at that day was comparatively limited, and his place of residence was out of the way for obtaining what, to some others, might have been accessible. He was also poor and it required money to carry out his plans and to mature

details for his experiments; a need that he sensibly felt.

In January 1788 he published a short treatise on steam, the title page of which is as follows:

"A Pæan, or
 Short treatise on the Application of Steam.
 Whereby is clearly shown from
 Actual Experiments
 That Steam may be applied to propel
 Boats or Vessels
 of any burthen against rapid currents
 With Great Velocity.
 The same principles are also introduced with
 Effect by a Machine of a Simple and
 Cheap Construction for the pur-
 pose of raising water sufficient for the
 Working of *Grist* or *Saw Mills* and for
 Watering Meadows and other
 Agricultural Purposes.
 By James Rumsey
 of Berkeley County, Virginia.
 January 1 MDCCLXXXVIII."

In the preface he feelingly refers to the difficulties, hindrances and disappointments which are the common experience of "those who have had the good fortune to discover a new machine, or to make any material improvements on such as have already been discovered."

Rumsey was very reticent about his early plans, and only confided them to a few chosen friends, among them a certain John Wilson of Philadelphia, who was then (the summer of 1783) a visitor at the Springs, and whose certificate, under date, "Philadelphia July 4th, 1788," as to communications to him by Rumsey of his plans, is set out in the "Treatise" above referred to as follows:

"The boat was finished in the fall of the same year (1783). Her hull was built by Rumsey's brother-in-law, Joseph Barns, who was a carpenter by trade. The estimated capacity of the boat was about six tons burthen.* Her boiler was a primitive affair, being simply an iron pot or kettle, such as is ordinarily used in the country for culinary purposes, with a lid or top placed on its mouth and securely

fastened there with bands, rivets and soft solder. The engine, which was constructed partly by the village blacksmith, but principally by Rumsey himself, was upon the Newcomer or "atmospheric" principle, its power being obtained by the weight of the air, pressing on the piston beneath which a vacuum had been created by the condensation of the steam. The mode of propulsion was by means of a pump, worked by steam, which, being placed toward the forward part of the boat, drew up at each alternate stroke of the engine a quantity of water, which, by the return or down stroke, was forced through 'a trunk at the bottom along the Kelson, and out at the stern under the rudder. The impetus of the water rushing through the trunk against the exterior water of the river, drove the boat forward; the reaction of the effluent water propelling her at a rate of speed commensurate with the power applied."

The construction of the boat and machinery and all the operations preparatory to the trial, were carried on with as little publicity as possible. It is said that the trial was made at night, in October, 1783, on the Potomac, at Sir John's Run, near Bath, with only Rumsey and his two friends, Orrick and Barns, present; and although expectations were not met, the results were such as to give encouragement and assurance for the future.

At that time there were no general Patent laws in existence, but each State regulated for itself the rights and franchises granted inventors. Rumsey accordingly sought to protect his rights, in the method of propelling boats by steam, by Petitions addressed to both the Legislature of Maryland, and the General Assembly of Virginia. These petitions recited the progress he had made, the expense incurred, and asked, in consideration of the public interest and benefit to be derived from such an enterprise, that there be granted to him certain exclusive rights and franchises for such a term of years as would compensate him for his labor and outlay.

At the next session, the Maryland Legislature passed an act entitled as follows:

"An Act to invest James Rumsey with an exclusive privilege and benefit of making and selling new invented boats

on a model by him invented; ——— for and during the space of ten years from the end of this session of the Assembly.”

Penalties were affixed for violating Rumsey’s rights.

The State of Virginia passed a similar Act.*

Further, George Washington, to whom Rumsey had exhibited a working model of his boat during the season of 1784, at Bath, (where Washington had a cottage, as a visitor at the Springs) adds his testimony as follows:

“I have seen the model of Rumsey’s boats, constructed to work against the stream; examined the powers upon which it acts; been eye witness to an actual experiment in running water of some rapidity, and give it as my opinion (although I had little faith before) that he has discovered the act of working boats by mechanism and small manual assistance against rapid currents

“That the discovery is of vast importance, may be of the greatest usefulness in our inland navigation, and if it succeeds (of which I have no doubt) the value of it is greatly enhanced by the simplicity of the works which, when seen and examined, may be executed by the most common mechanic.

“Given under my hand at the town of Bath, County of Berkeley, in the State of Virginia, this 7th day of September, 1784.”

“GEORGE WASHINGTON.”

The following is an extract from a letter by Rumsey to Washington, dated March 10, 1785:

“I have taken the greatest pains to perfect another kind of boat upon the principles I mentioned to you in Richmond in November last, and have the pleasure to inform you that I have brought it to great perfection. It is true it will cost something more than the other way, but when in use will be more manageable, and can be worked with as few hands. The power is immense and I have quite convinced myself that boats of passage may be made to go against the current of the Mississippi or Ohio Rivers, or in the Gulf Streams (from Leeland to the Windward Islands) from sixty to one hundred miles per day. I know

*See “Henning’s Statutes at Large,” Vol. XI. p. 502.

this will appear strange and improbable to many persons, yet I am very certain it may be performed; besides it is simple (when understood) and is also strictly philosophical. The principles of this boat I am very cautious not to explain, as it would be easily executed by an ingenious person."

Washington, in his reply to the foregoing, a few days afterward, says:—

"It gives me much pleasure to find by your letter that you are not less sanguine in your boat project than when I saw you in Richmond, and that you have made such further discoveries as will render them more extensively useful than was first expected. You have my best wishes for the success of your plan."

In a later letter Washington further says: *

"Mr. McMeiken's explanation of the movements of Rumsey's boat is consonant to my ideas, and warranted by the principle upon which it acts. The small manual assistance, to which I alluded, was to be applied in still water and to the steerage. The counteraction being proportioned to the action it must ascend a swift current faster than a gentle stream, and with more ease than it can move through dead water. But in the first there may be, and no doubt is, a point beyond which it cannot go without involving difficulties which may be found insurmountable. Further than this I am not at liberty to explain myself; but if a model, or thing in miniature, is a just representation of a greater object in practice, there is no doubt of the utility of the invention. A view of this model, with the explanation, removed the principal doubt I ever had of the practicability of propelling against a stream by the aid of mechanical power; but as he wanted to avail himself of my introduction of it to the public attention. I chose previously to see the actual performance of the model in a descending stream before I passed my certificate, and having done so, all my doubts are satisfied."

In May, 1785, Rumsey, being then wholly occupied with his duties as Secretary of the "Potomac Improvement

*Letter to Hugh Williamson, a member of Congress, dated, "Mount Vernon 15 March 1786," published in Spark's *Life of Washington*. Vol. IX, pp. 104-5.

Company," organized at the close of the Revolution to remove the rocks, open the channel and make the Potomac navigable from Georgetown to the Shenandoah river, at what is now known as Harper's Ferry, employed his brother-in-law, Joseph Barns, to build him a larger and more improved boat. It was built at the mouth of Sir John's Run, about fifty feet in length and of proportionate width, and was taken down the river in December, 1785, by Barns and Mr. McMeiken to the Shenandoah, where Rumsey, as stated, was then employed, so that its machinery (part of which was manufactured at Shepherdstown, Baltimore, Frederick, and at the Antietam works, in Maryland, near Shepherdstown) could be adjusted under the supervision of Rumsey himself.

Shepherdstown was selected as the point for the trial trip in consequence of the beautiful sheet of water in front of the town and the fact that it was a town of some importance at that period; besides, in the vicinity a number of noted persons resided, many of them of historic fame and of high intelligence. Shepherdstown was the spot whereon the first settlers who entered the Valley had located. An additional reason why this town should have the honor of witnessing this grandest of events was that it was then the place of Rumsey's residence, he having moved his family from Bath to that town where, some time previously, he had married a Miss Morrow, a sister of the "three Morrows," * as they were called, "men of some note in their day."

The difficulty of getting and fitting parts of the machinery so delayed the work that it was January (1786) before the boat was in shape to be taken to Shepherdstown for trial. By that time winter compelled further delay, during which Rumsey greatly improved the boiler, which had been made at Shepherdstown "out of pipes about the size of gun barrels; male and female screws were cut in the ends. All the pipes joined together and then the whole was bent around a saddler's collar-block, such as are used

*One of the Morrow's was a member of Congress, another a Governor of Ohio, "he completing the trio of Shepherdtowners who became governor of Ohio—Morrow, Tiffin and Worthington—all born and bred in the quaint little village near the Packhorse Ford."

by harness makers. The pipe thus formed was in shape somewhat approaching the worm of a still, though flattened at the sides. This was the rude steam generator, the best, possibly, attainable at that period under ordinary circumstances."

The following is an extract from a letter* written by Washington to Rumsey, urging him to exhibit his boat publicly, and as soon as possible and the reason for his haste:

"If you have no cause to change your opinion respecting your mechanical boat, and reasons unknown to me do not exist to delay the exhibition of it, I would advise you to give it to the public as soon as it can be prepared conveniently. The postponement creates distrust in the public mind; it gives time also for the imagination to work, and this is assisted by a little dropping from one, and something from another, to whom you have disclosed the secret. Should a mechanical genius, therefore, hit upon your plan or something similar to it, I need not add that it would place you in an awkward situation, and perhaps disconcert all your prospects concerning this useful discovery; for you are not, with your experience in life, now to learn that the shoulders of the public are too broad to feel the weight of the complaints of an individual, or to regard promises, if they find it convenient and have the shadow of plausibility on their side, to retract them. I will inform you further that many people in guessing at your plan, have come very near the mark; and that one, wanting a certificate from me, that it was different from yours. I told him that as I was not at liberty to declare what your plan was, so I did not think it proper to say that it was not. Whatever may be your determination after this hint, I have only to request that my sentiments on the subject may be ascribed to friendly motives and taken in good part."

"In March 1786, the machinery of the boat which had been laid up for the winter in Mr. Hamilton's cellar was taken out and replaced in the boat for the purpose of a

*Letter dated, "Mount Vernon, 31 January 1786," published in "Spark's Life of Washington," Vol. XII, p. 279.

trial trip to test a new tubular boiler which had been made during the winter. The trial was a private one, only a few persons being on board the boat besides Rumsey—Joseph Barns, Charles Morrow, Dr. McMechin and Francis Hamilton, the latter taking the helm. This trial trip was after night also. The boat steamed up the river against a rapid current and although too much steam escaped at the joints of the boiler, the experiment was, in all other respects, entirely successful. It was decided, however, to construct a new boiler on the same plan, but his duties in connection with his position as Superintendent of the Potomac Improvement Company, were such that they prevented him from giving as much attention to his own affairs as he should have done. Before the end of the summer of 1786, however, the boat was in good trim, his brother-in-law Barns having attended to the matters required. But now a new unforeseen disaster awaited him, for at last when Rumsey had been relieved for a time from his official engagements and was ready to start with his boat to Shepherdstown, there was a sudden rise in the river, one of those freshets so well known to those residing along the upper Potomac, which bring such disaster in its wake. The floating debris caught the unfortunate boat at her moorings, dragged her loose and wrecked her upon the rocks. Thus another disappointment was unavoidable, but having been accustomed to disappointments, he braced himself for another attempt to stare fate in the face, and by the Spring of 1787, the wrecked steamer was repaired, and before mid-summer the most of the machinery was again in working order. In September she was ready for trial, and shortly afterwards she was taken to Shepherdstown for public exhibition, which was finally arranged to take place on the 3rd of December 1787, in the presence of as many persons as were willing to witness it, everybody being invited to do so."

For the incidents of this trial, I quote from a description written by the late Hon. A. R. Boteler,* a cultured gentle-

*Mr. Boteler was born in Shepherdstown, May 15th, 1815, graduated at Princeton in Class of '35, was a member of the 35th U. S. Congress and occupied a number of other prominent public positions. He spent most of his life in Shepherdstown, and died there May 8, 1892.

man, who perhaps spent more time and effort in championing the claims of Rumsey as the inventor of the Steamboat, than any other person in this century:

"The writer having had the good fortune to be personally acquainted with several persons who were present when Rumsey's steamboat made her first trial trip at Shepherdstown, and having felt from his boyhood an abiding interest in the subject, took especial pains to obtain from them, individually, what they remembered of the occasion. Among the witnesses referred to, whom the writer knew and with whom in his youth he frequently conversed about Rumsey and his invention, were the following, viz: Mrs. Ann Baker, Mrs. Eleanor Shepherd, Major Henry Bedinger, Capt. Jacob Haines, Michael Fouke and Peter Fisher.

"Although more than a century has now elapsed since that memorable Monday, the 3rd of December, 1787, when it was first demonstrated to the public that an effective plan for steam-propulsion had been invented, it is not difficult for those familiar with the physical features of the locality where it occurred, to form, from the descriptive accounts given by the above named persons, a proximate idea of the scene as it then appeared, with the attendant circumstances of the occasion, for the meddlesome hand of modern improvement has not even yet done much to mar or modify the general aspect of the quaint old town and its rocky surroundings. Its rocky cliffs, which rise for a hundred feet above the right bank of the river, are as unchanged now, with the exception of a passage-way at one point for a railroad, in their time-tinted ruggedness as in their romantic associations.

"From all accounts the day was a beautiful one, and at an early hour the people from the surrounding country began to pour into town, some coming from a considerable distance, and all eager to see the wonderful boat which they had heard would be made to move by some mysterious agency, without the aid of oars, sails, paddles or setting poles; so, that by the time appointed for the exhibition, which was the hour of noon, the picturesque cliffs which flank the ferry landing were occupied by hundreds of curious spectators, grouped on every 'coigne of vant-

age' that could afford an unobstructed view of the river, a view such as poets dream of and as drive painters to despair.

"On a rocky knoll near the cliff and beneath the sheltering branches of a clump of cedars which formed a natural canopy of evergreens above them, was a group of ladies and gentlemen whose names, being identified with the occasion, may properly be mentioned here. The most conspicuous figure in the group was that of Horatio Gates, 'later major general in the Continental Army,' and at that time residing on his 'Traveler's Rest' estate, five miles from Shepherdstown. He was of medium height and full habit with a florid complexion, which indicated a fondness for the material things of this world.

"By the side of General Gates, and in marked contrast as to face and form, was Major Henry Bedinger, a tall, slender man, of saturnine complexion, who was as straight as an Indian, and whose piercing, black eyes were as bright as an eagle's. Near him were the Rev. Robert Stubbs and Capt. Abram Shepherd, the former of whom was principal of the Classical Academy and rector of the Episcopal (or, as it was then called, 'English') Church, of which Captain Shepherd "was one of the wardens."

"Then there was another Revolutionary officer near by—Col. Joseph Swearingen, a tall, robust, soldierly-looking person.

"The next claiming attention was a stoutly built man of brusque address. It was General Darke, who had been an officer in the old French War, as well as in that of the Revolution, and who, subsequently, in the Indian War of 1791, distinguished himself at St. Clair's defeat.

"Besides the foregoing there was Philip Pendleton,

. John Kearsley, . . . and Cato Moore. . . .

The three Morrows, brothers-in-law of Rumsey, of course were there; as likewise John Mark, Thomas White, David Gray, Benoni Swearingen and other prominent citizens now forgotten.

"Among the ladies in the group were Mrs. Abram Shepherd, Mrs. Rumsey and her sister-in-law, Mrs. Charles Morrow, Mrs. Mark (with her little daughter Ann, who afterward became Mrs. John Baker,) and several others.

"Rumsey had invited the above named ladies to take passage on his boat, but no gentleman was permitted on board, except Charles Morrow and Dr. McMechin, the former of whom was to take the helm and the latter to assist Rumsey in attending to the machinery. When, therefore, it was time to start, the ladies were escorted on board to seats provided for them abaft the boiler, which, with the rest of the machinery, occupied the forward part of the boat, 'about two-thirds of its length from the stern.' . . .

"When they had shoved the boat off a short distance from the shore, Rumsey started her engine and moved slowly out to the middle of the river, where, rounding to, in obedience to her helm, and with her prow pointing westward, she paused for a moment and then, by a sudden impulse, steamed off up stream, against the current of the river amid the shouts of the excited multitude upon the shore.

" 'I was standing next to General Gates,' said Major Bedinger, in describing the scene to the writer, 'he was very near-sighted, and watched the preparations for starting the boat with much interest through his eye-glasses. When she moved out and he saw her going up the river against the current, by the force of the steam alone, he took off his hat and exclaimed, 'My God, she moves! Yes,' added the venerable major; 'and when she moved, the destiny of the world, too, moved that day.'

"But to return to the boat itself, which we left steaming her way up the river, after going for a half mile or more above the town, to a point opposite what is known as Swearingen's Spring, she rounded to and returned, going for some little distance below town, beyond where the Shenandoah Valley Railroad bridge now spans the Potomac, 'the people again raising a mighty shout as she passed by them.' Thus she continued to go to and fro, up and down the river, for about the space of two hours, in full view of many hundreds of spectators, and then steaming back to the ferry-landing, her delighted passengers were put ashore, and Rumsey received the cordial congratulations of the assembled crowd.

"The average rate of speed to which the boat attained on this occasion was three miles an hour, but on a second

trial of her, which took place in the following week, on Tuesday, December 14th, 1787, in the presence of numerous spectators, the certificates of some of whom will be referred to presently, her speed was increased to four miles an hour."

The following letter refers to the second trial trip of December 11th, 1787:

"From the 'Virginia Gazette and Winchester Advertiser,' of Friday, January 11, 1788.

To the Printers of the Winchester Advertiser, &c.

GENTLEMEN.

Please to insert the following extract of a letter from a person who saw Mr. Rumsey's exhibition, and oblige

Your humble servant,

A SUBSCRIBER."

"On the eleventh day of this month, Mr. Rumsey's steam boat, with more than half her loading (which was upwards of three tons) and a number of people on board, made a progress of four miles in one hour against the current of the Potomac river, by the force of steam, without any external application whatsoever, impelled by a machine that will not cost more than twenty guineas for a ten-ton boat, and that will not consume more than four bushels of coals, or the equivalent of wood, in twelve hours. It is thought that if some pipes of the machine had not been ruptured by the freezing of the water, which had been left in them a night or two before, and which ruptures were only secured by rags tied round them, that the boat's way would have been at the rate of seven or eight miles in an hour. As this invention is easily applied to boats or ships of all dimensions, to smooth, shallow and rapid rivers, or the deepest and roughest seas, freightage of all kinds will be reduced to one-third of its present expense.

December 16, 1787.

I am, &c., &c."

In the "Pæan or Short Treatise on steam," heretofore referred to, published by Rumsey, January 1st, 1788, he speaks of this second trial as follows:

"My machine with all its misfortunes upon its head, is abundantly sufficient to prove my position, which was that a boat might be so constructed as to be propelled through the water at the rate of ten miles an hour, by the force of steam, and that the machinery employed for that purpose might be so simple and cheap as to reduce the price of freight at least one-half in common navigation;—likewise that it might be forced by the same machinery, with considerable velocity, against the constant stream of long and rapid rivers. Such machinery I promised to prepare, and such a boat to exhibit; this I have now so far performed in the presence of so many witnesses, and to the satisfaction of so many disinterested gentlemen, as to convince the unprejudiced, and to deprive even the sceptic of his doubts, &c."

The following is a copy of Rumsey's own description of his boat as given in his pamphlet above referred to:—

"In the bottom of the boat on the Kelson is a trunk, the after end of which is open and terminates at the stern post; the other end is closed, and the whole trunk, according to its dimensions, occupies about three-fourths part of the length of the boat. On the closed end of the trunk stands a cylinder two and a half feet long; from this cylinder there is a communication by a tube to the river or water under the boat; on the top of this tube, and within the cylinder there is a valve to admit the water from the river into the cylinder, and it likewise prevents its returning the same way. There is another communication which lets the water pass freely from the cylinder to the trunk through which it is discharged at the stern. On the top of this cylinder there stands another of the same length which is fixed to the under one by screws; in each of these cylinders there is a piston which moves up and down with very little friction; these pistons are connected by a smooth bolt passing through the bottom of the upper cylinder: the lower cylinder acts as a pump which draws water from the river through the tube of the valve before described. The upper cylinder acts as steam engine, and receives its steam from a boiler under its piston, which is then carried up to the top of the cylinder by the steam (at the same time the piston of the lower cylinder is brought up to the top, from its

connection with the upper piston by the aforesaid bolt); they then shut the communication from the boiler and open another to discharge the steam for condensation: by this means the atmosphere acts upon the piston of the upper cylinder and its force is conveyed to the piston of the lower cylinder by the aforesaid connecting bolt, which forces the water then in the lower cylinder through the trunk with considerable rapidity; the reaction of which at the end of the trunk is the power that propels the boat forward."

In the winter of 1787-8, Rumsey went to Philadelphia, and the interest awakened there in his steamboat resulted in the formation of "The Rumseian Society", with Benjamin Franklin, President, and twenty-seven other gentlemen as members. In May following, 1788, by the aid of the said Society, Rumsey went to England, bearing with him letters of introduction and endorsement from Washington, Franklin, Patrick Henry and other distinguished Americans of that day.

The following is a copy of another publication in a Winchester newspaper:

"From the Virginia Centinel, or the Winchester Mercury, of September 17, 1788:

"PHILADELPHIA, September 3, 1788.

"We learn that Mr. James Rumsey, of Shepherdstown, Virginia, the ingenious inventor of the steamboat, exhibited last Fall on the river Potomac, and which was propelled against the stream at the rate of four miles an hour by the force of steam, without the assistance of oar or paddle, is now in England. He was recommended to the Society of Arts and Sciences there by his Excellency, Dr. Franklin, and has demonstrated the utility of his plans to the entire satisfaction of that body. It is hoped that on his return to his native country he will receive that encouragement from his fellow-citizens which his merits so justly entitle him."

"One of the first duties of Rumsey upon his arrival in England was to 'procure patents from the British Government for steam navigation,' and for various improvements in steam engines, pumps, boilers and mill machinery,' which cost him 'more money than he expected to pay for

the protection they afforded him.' But, of course, the main object of his visit to England was to introduce his steamboat, and to this he addressed himself with his accustomed energy, but difficulties and embarrassments of a pecuniary nature beset his path on all sides. However, he struggled on until finally he was enabled to begin the construction of his boat to be launched upon the Thames. The boat was finished in 1790, and was 100 feet long, with proportionate breadth of beam and depth of hold."

But, after all the burdens borne, on the very eve of triumph, Mr. Rumsey was not spared to enjoy the consummation. The last chapter in his life, and the circumstances attending his untimely death—which occurred suddenly, in London, December 21st, 1792,—are told in the following letter:*

"London, December 26, 1792.

"On the day the last part of this letter was written he (Rumsey) received a note from the Committee of Mechanics requesting his attendance at the Committee room of the Society of Arts in the Adelphi, on the evening of the 20th, to substantiate the utility of a model which he had sent there ten months ago for the equalization of water or water wheels. He drank tea at home about 7 o'clock that evening and was, as he had been for months past, in very great spirits. After tea he went to the Committee room, and in due course delivered what all the members afterward expressed rather a lecture on hydrostatics than an explanation of the model, to the admiration and satisfaction of all present; after which he was busy in wording resolutions to be entered in the Society's book, when he was perceived to lift instinctively his right hand to his temple and complain of a violent pain, which were the last articulate words he spoke. Every necessary medical assistance was at hand—Dr. Austin, Dr. Baker, etc. He was taken to the Adelphi hotel, where he expired about a quarter past 9 o'clock the next evening, remaining nearly the whole time sensible, but almost speechless.

*The *original* letter from Mr. Wakefield was before the Committee of United States Congress to which the "Petition of James Rumsey's Heirs" was referred, in 1839.

"Every respect has been paid to his remains by his friends, several of whom attended at his interment at St. Margaret's, Westminster, where I had him conveyed on Monday evening last. I fear his affairs will be too intricate to make it safe for any one to administer, as he has left no will, at least in England; powers of attorney must, therefore, be sent, or some one come legally authorized.

"I have sealed up his papers, &c., which shall remain until I hear further from his family. His family may probably be at a loss how to proceed; I would, therefore, recommend you to write them on the subject, and earnestly request persons to be appointed who know the parties with whom they are to settle. Every exertion in my power in the interim for the benefit of his family shall be made. It is my duty to him in whom I had a friend so valuable, that our endeavors were equal, our wishes reciprocal, and our persons for years past inseparable. For him I lament, for the world I regret, but for his family I mourn. Any command you may have in this country that I can execute I hope you will make free to order.

"Sir, your obedient, humble servant,
R. C. WAKEFIELD."

Though the workman died the work went on, and the boat which Rumsey in the last struggles of his self-sacrificing life succeeded in having built, was afterwards tried and tested, and the favorable result recorded in the published account in the "Gentleman's Magazine," of February 1793, in which the boat is said to have attained a speed of "four miles an hour!"

The honors and rewards so well earned by Rumsey, ought to have been the inheritance of his only son, James Jr., but he was blind and deaf from the effects of scarlet fever, and hence physically incapacitated for taking up and continuing the work so suddenly laid down by his father.

Under these circumstances, the golden opportunity was soon grasped by others interested in the same line of invention, one of the more successful of whom was William Symington, who was born at Lead hills, in Oct., 1763, educated at the Universities of Glasgow and Edinburgh, and adopted the profession of Civil Engineer.

